Differences in Acinetobacter baumannii Strains and Host Innate Immune Response Determine Morbidity and Mortality in Experimental Pneumonia

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Résumé en anglais	Despite many reports documenting its epidemicity, little is known on the interaction of Acinetobacter baumannii with its host. To deepen our insight into this relationship, we studied persistence of and host response to different A. baumannii strains including representatives of the European (EU) clones I–III in a mouse pneumonia model. Neutropenic mice were inoculated intratracheally with five A. baumannii strains and an A. junii strain and at several days morbidity, mortality, bacterial counts, airway inflammation, and chemo- and cytokine production in lungs and blood were determined. A. baumannii RUH875 and RUH134 (EU clone I and II, respectively) and sporadic strain LUH8326 resulted in high morbidity/mortality, whereas A. baumannii LUH5875 (EU clone III, which is less widespread than clone I and II) caused less symptoms. A. baumannii type strain RUH3023T and A. junii LUH5851 did not cause disease. All strains, except A. baumannii RUH3023T and A. junii LUH5851, survived and multiplied in the lungs for several days. Morbidity and mortality were associated with the severity of lung pathology and a specific immune response characterized by low levels of anti-inflammatory (IL-10) and specific pro-inflammatory (IL-12p40 and IL-23) cytokines at the first day of infection. Altogether, a striking difference in behaviour among the A. baumannii strains was observed with the clone I and II strains being most virulent, whereas the A. baumannii type strain, which is frequently used in virulence studies appeared harmless.
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